Fourth Update on the Implementation of the 2005 ARB / Railroad Statewide Agreement

July 27, 2007

California Environmental Protection Agency

Air Resources Board

Introduction

- In 2005, ARB staff entered into Agreement with BNSF Railways and Union Pacific Railroad
- Objective to reduce diesel PM
- Includes 17 large and 15 small railyards
- Identifies numerous specific elements, including the completion of health risk assessments for the designated yards
- Progress reports to Board every six months

What this Progress Report Covers

- Installation of idle reduction devices
- Use of low sulfur diesel fuel
- Compliance with elements of the agreement
- The locomotive remote sensing program
- Technology assessments
- Railyard inspections
- Draft health risk assessments

Idle Reduction Devices for Intrastate Locomotives

(UP and BNSF – Progress as of July 1 each year)

Year	Equipped
2005	117
2006	230
2007	383
2008	450*
*Based on current fleet population	

California is Ahead of the Nation on Intrastate Locomotive Idle Reduction Device Retrofits

California: 85%

National: 36%

CARB and USEPA Low Sulfur Diesel Fuels "Complying"

- CARB diesel for intrastate locomotives began

  January 1, 2007

- Minimum of 80 percent CARB or USEPA low sulfur (15 ppm) diesel fuel dispensed into interstate locomotives began

  January 1, 2007

Diesel Storage Tanks

Diesel Fueling Rack

Railroad Employee Training

Idle Reduction

- About 7,400 employees have been trained.

Visible Emissions

- About 4,200 employees have been trained.

Visible Emission Inspections by Railroads

- Over 12,300 visible emission inspections performed in the last six months.
- About 39,000 visible emission inspections performed since 2005.
- Overall compliance rate = 99%

Locomotive Remote Sensing Pilot Program
(AB 1222 – Jones)

- AB 1222 requires locomotive remote sensing pilot program
- Established Advisory Committee:
  - South Coast and Sacramento air districts
  - UP and BNSF
  - Environmental representatives
  - 25 meetings
- Three phase testing program
  - Phase 1 completed March 2007
  - Phase 2 underway
  - Phase 3 scheduled for September 2007
- Report to Legislature in fall 2007

Technology Assessments

- Diesel oxidation catalyst retrofit to 1992 line haul locomotive
- Diesel particulate filter retrofits on two older switch locomotives
  - December 2006 (assigned to UP Oakland and BNSF LA)
- ARB Contract to retrofit SCR to line haul locomotive

Technology Symposiums

- 2007 Technology Symposiums
  - June 6, 2007 (Sacramento)
  - Fall 2007 (Southern California)

OTHER ACTIVITIES

Low Emitting Switch Locomotives (California)

- 450 California-based locomotives (UP and BSNF)
- New low emitting gen-set switch locomotives
  - 28 now in service (southern CA)
  - 42 more expected by late 2007 (S & N CA)
  - Up to 90% reduction in NOx and diesel PM
- 12 Electric-Hybrids (Green Goats)
- Turnover of intrastate fleet expected by 2010

2007 ARB Enforcement Activities

- Inspections at 31 railyards
- Observed 964 locomotives
- Issued 40 NOVs for 96% compliance rate
- Diesel fuel within requirements

Community Complaint Process and Status

- **Union Pacific Railroad - 1.888.877.7267**
  BNSF Railway - 1.800.832.5452

- **Since December 2006 BNSF and UP have received an average of about 25 calls per month.**
  - **Overall for 2006 both railroads, received an average of 31 calls per month.**

- **Both railroads are continuing to track and improve how calls are processed.**

Health Risk Assessments

- Agreement requires that HRAs be developed for 16 railyards
- Provide information about the emissions and public health impacts of railyard operations on nearby communities
- Information used to inform public and to help identify ways to mitigate the impacts
- Only one other railyard HRA ever prepared - the 2004 Roseville Railyard HRA

What is a Health Risk Assessment?

- Tool used to evaluate potential for an air toxic to cause cancer or other illnesses
- Elements of the HRA:
  - Emissions Inventory
  - Air Dispersion Modeling
  - Assessment of Associated Health Risks
- Railroads prepared emissions inventory and air dispersion modeling
- ARB staff responsible for HRA reports
- HRAs prepared following ARB and OEHHA Guidelines

Health Risk Assessments Schedule

Draft Health Risk Assessments Released in *May-June 2007*		Draft Health Risk Assessments to be Completed by *December 31, 2007*	
Railyard	Company	Railyard	Company
Commerce (Eastern/Sheila)	BNSF	Barstow	BNSF
Hobart	BNSF	San Bernardino	BNSF
Commerce	UP	Industry	UP
LA (LATC)	UP	Colton	UP
Wilmington (Watson)	BNSF	Dolores (ICTF)	UP
Mira Loma	UP	San Diego	BNSF
Richmond	BNSF	Oakland	UP
Stockton	BNSF		
Stockton	UP		

Draft HRAs Completed

- Draft HRAs released in May and June at community meetings
  - Commerce (4 yards)
  - Mira Loma
  - Wilmington
  - LA (LATC)
  - Richmond
  - Stockton (2 yards)
- Initial meetings followed by second round of meetings in June and July to take comments and discuss mitigation measures

Draft HRA Results

- Diesel PM emissions from railyards result in higher pollution risks in nearby communities
- Generally, locomotives are the major contributor to diesel PM emissions in railyards
- For the four Commerce yards, trucks are as significant as locomotives
- Mitigation necessary at all yards to reduce the risk

Next Steps

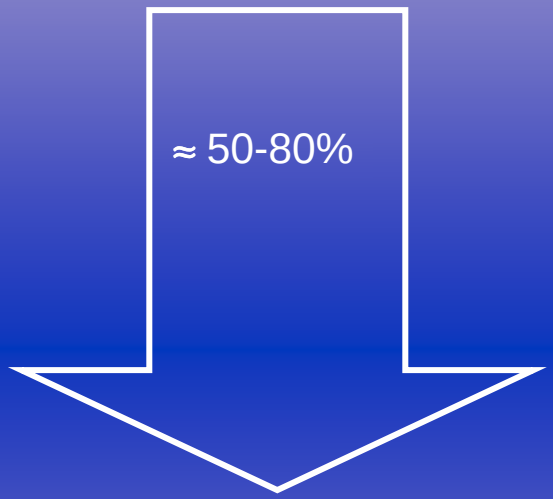
- Complete the draft HRAs
- Convene local workgroups to address non-cancer impacts
- Convene local workgroups to discuss mitigation to reduce the impacts on a railyard specific basis

California Railyard Diesel PM Emission Reduction Measures

- **2005-2007:**
  - 2005 railyard agreement
  - CARB diesel fuel for intrastate locomotives
- **2005-2010:**
  - ARB transport refrigeration unit regulation
  - ARB cargo handling equipment regulation
  - ARB on-road heavy-duty truck regulation
  - 1998 NOx locomotive fleet average agreement – South Coast

Expected Additional Measures

- **2005-2020:**
  - **U.S. EPA locomotive rulemaking**
  - **California replacement of switch locomotives**
  - **ARB in-use truck measure**
  - **ARB in-use port and intermodal railyard truck measure**
  - **ARB Tier 4 off-road diesel standards**



Summary

- Implementation on schedule
- Draft HRAs for first 9 railyards released
- Identify need for future mitigation
- Lower emitting switch locomotives entering service in California
- Compliance occurring at a high level
- Next six months
  - Complete HRAs for 9 yards
  - Begin railyard specific mitigation evaluation
  - Complete draft HRAs for 7 yards
  - Continue ongoing implementation
- Present next progress report in six months